R E P O R T R E S U M E S

ED 011 684 EA 000 026

POLICY OUTCOMES IN PUBLIC EDUCATION.

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EDRS PRICE MF-$0.09 HC-$1.96 49P.

DESCRIPTORS- *EDUCATIONAL POLICY, *SOCIOECONOMIC INFLUENCES, *POLITICAL INFLUENCES, *SYSTEMS ANALYSIS, *MODELS, URBANIZATION, INDUSTRIALIZATION, INCOME, EXPENDITURES, SCHOOL DISTRICTS, CENTRALIZATION, STATE GOVERNMENT, TEACHERS, DROPOUTS, FEDERAL AID,

THE AUTHOR'S POSITION WAS THAT ECONOMIC DEVELOPMENT VARIABLES (LEVEL OF URBANIZATION, INDUSTRIALIZATION, INCOME, AND EDUCATION) ARE MOST CLOSELY CORRELATED TO EDUCATIONAL POLICY OUTCOMES (EDUCATIONAL EXPENDITURES, STATE EFFORTS IN EDUCATION ORGANIZING AND FINANCING PUBLIC SCHOOLS, STATUS OF TEACHERS, AND NUMBER OF DROPOUTS AND SELECTIVE SERVICE MENTAL FAILURES) THAN POLITICAL SYSTEM VARIABLES (PARTISAN CHARACTER, PARTY COMPETITION, POLITICAL PARTICIPATION, AND MALAPPORTIONMENT OF THE STATES). DATA FROM 50 STATES WERE SUBJECTED TO SIMPLE, PARTIAL, AND MULTIPLE REGRESSION ANALYSIS TO ASSESS THE EFFECT OF THE VARIABLES ON EDUCATIONAL POLICY OUTCOMES. SIMPLE CORRELATION COEFFICIENTS COMPUTED FOR ALL RELATIONSHIPS BETWEEN ECONOMIC AND POLITICAL VARIABLES AND EDUCATIONAL POLICY OUTCOMES INDICATED THAT ECONOMIC DEVELOPMENT IS DIRECTLY RELATED TO EDUCATIONAL OUTCOMES. NO MEANINGFUL SIMPLE CORRELATIONS EXIST, HOWEVER, BETWEEN PARTICULAR POLITICAL VARIABLES AND EDUCATIONAL POLICY OUTCOMES. MULTIPLE CORRELATION ANALYSIS CORRELATING ALL ECONOMIC AND POLITICAL VARIABLES AND EDUCATIONAL OUTCOMES SIMULTANEOUSLY EXPLAINS MOST VARIATION AMONG THE 50 STATES IN IMPORTANT POLICY OUTCOMES. THROUGH THE USE OF MULTIPLE-PARTIAL CORRELATION A COMPARISON OF THE INDIVIDUAL EFFECTS OF ECONOMIC AND POLITICAL VARIABLES CAN BE MADE. THE DATA ILLUSTRATE THAT ECONOMIC DEVELOPMENT VARIABLES ARE MORE INFLUENTIAL THAN POLITICAL SYSTEM VARIABLES IN SHAPING POLICY OUTCOMES. (GB)

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ED011684

POLICY OUTCOMES IN PUBLIC EDUCATION

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While the structure and functioning of political systems has always been a central concern of political science, the content of public policy is also a dependent variable which political science should endeavor to explain. Policy outcomes express the value commitments of a political system and these commitments are important political data. The task of political science is to identify independent variables which explain differences in policy outcomes, and to ferret out intervening variables which appear related to policy outcomes but which have no effect on them.

Yet too often, political scientists have been guilty of implicitly viewing political life as a closed system. Specifically, political scientists have developed modes of analysis which lead them to account for what happens in a political system almost solely in terms of its internal activities. For example, the outcome of a battle over state labor legislation is usually explained by referring to the activities of labor and management interest groups, the mechanizations or folkways of state legislatures, the power of the governor, and so on. Rarely do we penetrate to the economic forces which give rise to the issue in the first place and which more often than not determine its outcome. We explain the outcome of a battle over educational policy in terms of the activities of the National Education Association or the U. S. Office of

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Education; or the relations between the state education departments, governors, and legislatures; or the Catholic hierarchy; or the political strength of taxpayers organizations; and so on. Yet policy outcomes in the education field may be fundamentally a product of our level of wealth, urbanization, and industrialization.

Everybody recognizes that environmental variables are operative, but these variables are often slighted, and occasionally ignored, in specific explanations. Explanations are usually couched in terms of activities which occur within the political system. Political science does not lack for descriptions of what goes on within political systems. What it lacks is a clear picture of the linkages between political activity, environmental variables, and public policy. How do political demands develop out of environmental conditions? How do these demands manifest and communicate themselves? How does the political system adapt itself to these demands? How is the substance of public policy affected by these demands?

American political science has tended to emphasize the support a system receives as a product of commitments to the character of the system itself. These commitments are certainly important to any political system, but we have not really examined the influence of policy outputs on the level of support for a political system. This is part of the general myopia of political science regarding policy outcomes. What consequences do policy outcomes have for the level of support accorded to a political system? Which demands need to be satisfied in order to maintain a level of support sufficient to enable a system to

persist? How long can system attachments provide the necessary support for a political system in the face of unsatisfying outcomes? These and similar questions might be explored in future research on policy outcomes.

A Systems Model for Analyzing Educational Policy Outcomes

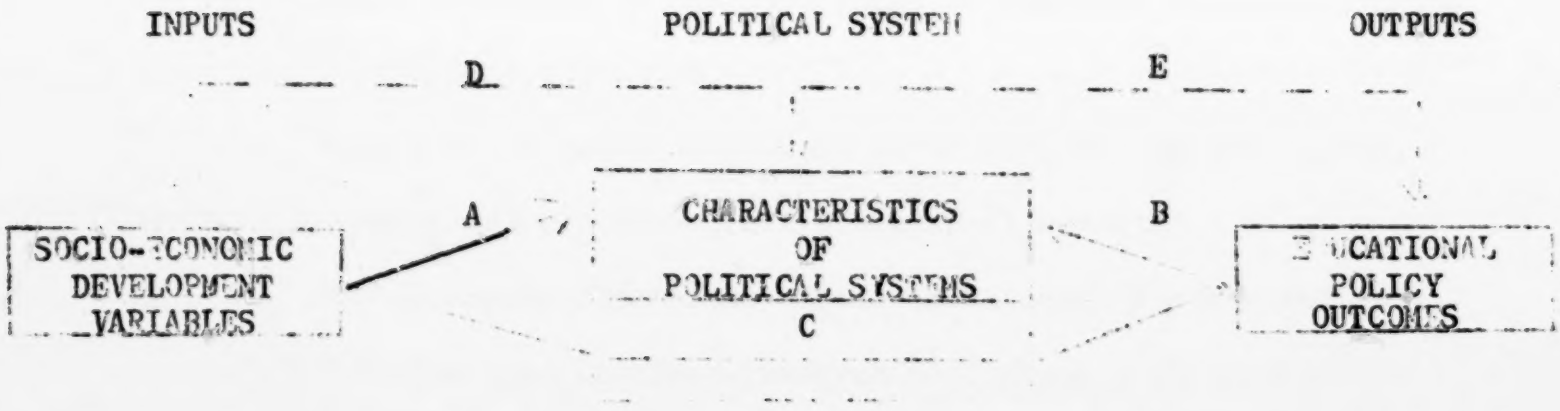
How can we achieve a better perspective on the relationships between educational policy, political activity, and environmental variables? The purpose of this paper is to explore the utility of general systems theory in helping us think about these linkages. It is our contention that the conceptual framework developed by David Easton in A Systems Analysis of Political Life, and other publications, is a useful analytic tool in examining the determinants of policy outcomes in public education in the American states. Moreover, it is our contention that the insights devised from a systems analysis approach to educational outcomes will challenge many of the assumptions in political science literature about the effect of political variables on policy outcomes.

Let us use the Easton model to conceptualize the determinants of public educational policy in the fifty states. We shall conceive of educational outcomes as the product of "inputs" brought to bear upon a "system" causing it to produce particular "outputs". The diagram below assumes that the socio-economic character of a state, that is, any condition defined as external to the boundaries of its political system, determine the nature of its political system. The political system is that group of inter-related structures and processes which

FIGURE 1

A MODEL FOR THE ANALYSIS OF

EDUCATIONAL POLICY OUTCOMES



e.g.	e.g.	e.g.
urbanization	constitutional framework	educational expenditures
industrialization	partisanship	educational effort
income	party competition	organization of school system
education	political participation	division of state local responsibilities
	appointment system	"quality" in education
	interest group structure	teachers and classrooms
	political style	

function to authoritatively allocate values within a state. Policy outcomes are viewed as the value commitments of the political system and as such they are the chief output of that system.

The value of Easton's model lies in the questions that it poses. The model calls attention to the full range of research questions facing the student of public education.

1. What are the basic dimensions of educational system inputs, system structures and processes, and educational outputs?

2. How do inputs dimensions affect educational systems and processes? (This question involves research on linkage A in the diagram.)

3. How do educational systems and processes affect educational outcomes? (Research on linkage B.)

4. How do input dimensions affect educational outcomes? (Research on linkage C.)

5. How do educational outputs affect, through feedback, system inputs? (Research on linkage D.)

6. How do educational outputs affect through feedback system structure and process. (Research linkage on E.)

Linkages A and B suggest that socio-economic variables are inputs which shape the political system, and that the character of the political system in turn determines educational outcomes. These linkages represent the most common notions about the relationship between socio-economic inputs, political system variables, and policy outcomes. They suggest that system variables have an important effect on educational outcomes by mediating between socio-economic conditions and these outcomes.

Linkage C on the other hand, suggests that socio-economic variables affect educational policy directly, without being mediated by system variables. Of course educational policy is still formulated through the political system, but linkage C suggests that the character of that system does not independently influence policy outcomes. Hence, the linkage between socio-economic inputs and policy outcomes is unbroken.

Within this conceptual framework, the central question presented is whether or not differences in educational outcomes are independently related to system characteristics. Do system characteristics mediate between socio-economic inputs and educational outcomes (as suggested by linkages A and B) or are policy outcomes determined by socio-economic variables without regard to system characteristics (as suggested by linkage C)? To state the problem in another fashion: Assuming that socio-economic variables influence both system characteristics and educational outcomes, can system characteristics be shown to influence educational outcomes once the effects of socio-economic variables are controlled?

The fifty American states provide an excellent opportunity for exploring the questions posed by our model. These fifty political systems share a common institutional framework and cultural milieu. This background of institutional and cultural uniformity in the American states makes it easier to isolate causal factors in our analysis of Educational policy.

Of course the American states are not exactly alike, either with respect to environmental variables, political system characteristics, or educational outcomes. And this too, is an important asset in comparative analysis. In short, the analytical potential in American state politics is enormous. Only recently have students of state politics displayed significant interest in this potential.

Defining the Dimensions of Educational Inputs, Political System Characteristics, and Educational Outcomes

Any model, including Easton's systems model, is an abstraction or representation of the real world. Its purpose is to order and simplify our thinking about reality. But the basic dilemma in model-building is how much to simplify reality. Certainly the utility of a model is its ability to simplify, this enables us to think more clearly about the complex relationships one finds in the real world. But too much simplification may lead to inaccuracies in our thinking. If we include too few variables in our model and posit only superficial relationships we may not be able to explain policy outcomes which occur in the real world. On the other hand, if we include too many variables or posit overly complex relationships, our model becomes so complicated that it does not aid us in understanding.

There is no real way to escape this dilemma; we can only proceed to posit the dimensions of our inputs, system characteristics and outcomes on the basis of existent social theory, previous research, and value judgments about what kinds of outcomes which are important to us.

Let us turn first to the problem of selecting input variables. Students of politics from Aristotle to the present have recognized that society in economic development helps to shape its political system and determine its public policy. Economic development is defined here to include urbanization, industrialization, income, and the level of adult education. These four components of economic development are closely related. Industrial societies require and support concentrations of people in contrast to agricultural societies, which are more extensive users of land. An industrial economy increases worker productivity and produces a surplus of wealth. And a highly developed economy requires educated rather than uneducated workers.

It is not difficult to justify the selection of economic development as the principle input variable in a model designed to explain educational policy outcomes. The literature on economic development is replete with theoretical postulates and empirical evidence of the linkage between a society's economy and its educational requirements. And the National Educational Association has pressed this point with legislators:

> "There is an intimate relationship between schooling and the economic health of a nation and of its citizens. Prosperity demands productivity and productivity demands trained talent. Education develops the intellectual and manual skills which underlie the productive abilities of individual and nations today. Nations with the highest general level of education are those with the highest economic development. Schools, more than natural resources, are the basis of prosperity.
>
> The modern economy demands not muscle but skill and intellect. As energy is produced increasingly by mechanical means, the man who has only his energy to sell is increasingly dispensable.
>
> Education does not guarantee health, wealth or civic virtue; but sickness, unemployment, and crime are most prevalent among the under-educated segments of the population (and all undermine prosperity. Their cost is expressed in human and

> social decay and in public expenditures for police, relief, and treatment of preventable illness.) Where ignorance generates poverty, poverty perpetuates ignorance, and the whole nation is the weaker...
>
> A similar relationship appears in draft rejections. . . Rejections rates cannot be attributed to lack of schooling alone, but they correlate highly with lack of education and with low expenditures for schools...
>
> The ability of American society to conduct its essential affairs - political, economic, and military - depends directly on education."

Fortunately, if only for the sake of analysis, there are marked differences among the states in economic development levels. In 1960 the median family income in Connecticut was two and one half times what it was in Mississippi. Over 85 percent of New Jersey residents lived in urban areas while 65 percent North Dakota residents lived in rural areas. Only one percent of the labor force in Massachusetts was engaged in agriculture, but 33 percent of the labor force in North Dakota was in agriculture. Kentucky adults averaged only an eighth grade education, while adults in seven states averaged more than 12 years of schooling. This is sufficient variation to permit observations about the impact of economic development levels on political systems and policy outcomes.

What system characteristics should be incorporated into our model? Just as it was necessary to limit the number of environmental variables which could be included in our model, so also it is necessary to limit the number of system characteristics to be incorporated into it. This is another compromise with reality which we make in the construction of a model. Four sets of system variables were chosen for inclusion in our model of policy outcomes, two reflecting characteristics of the party system and two reflecting characteristics of the electoral system.

Party systems are represented in our model by several measures of the level of inter-party competition in state politics, and by measures of the division of Democratic and Republican party control of state government. Electoral systems are represented by several measures of the level of voter participation or turnout, and by several measures of the degree of malapportionment in state legislative districts. All four of these system characteristics -- the division of two party control, the level of interparty competition, the level of voter participation, and the degree of malapportionment -- have been hypothesized as influential in shaping policy outcomes in the American states. In this paper we shall explore the extent to which these system characteristics influence education outcomes.

Three specific measures of partisanship are employed:

1. The percentage of total seats in the lower chamber of the state legislature held by the Democratic party from 1954 to 1964.
2. The percentage of total seats in the upper chamber of the state legislature held by the Democratic party from 1954 to 1964.
3. The average Democratic candidate's percentage in Gubernatorial elections held between 1954 and 1964.

Note that these measures of partisan success are expressed as Democratic percentages. The inverse of these measures expresses Republican success. Policies which positively correlate with these measures of Democratic control will negatively correlate with Republican control to the same

degree. The time span selected for measuring system characteristics was the decade immediately preceding the years selected the measuring policy incomes.

Our measures of party competition are very similar to our measures of Democratic and Republican party control of state government. The difference is that our competition measures deal with the proportion of success achieved by the Majority party in each state, regardless of whether the majority party was the Democratic or Republican party. Specifically our measures of party competition were:

1. One minus the percentage of seats in the house of the state legislature held by the majority party from 1954 to 1964.
2. One minus the percentage of seats in the upper house of the state legislature held by the majority party from 1954 to 1964.
3. One minus the average margin of victory in Gubernatorial elections from 1954 to 1964.

Because we are concerned with state policy outcomes, our system measures center about those institutions whose function it is to make public policy for the state -- the governorship and the upper and lower chambers of the state legislature. Ideally we would want our participation measures to center about voting turnout in elections to all three institutions. However, votes for state legislators are not centrally collected in the United States and substitution was unavoidable. Participation in Gubernatorial elections was readily available; Congressional

election turnouts were substituted for state legislative turnouts. Specifically, our participation measures were:

1. The average percentage of eligible voters casting votes in Gubernatorial elections between 1954 and 1964.
2. The percentage of eligible voters casting votes in the 1958 Congressional elections.
3. The percentage of eligible voters casting votes in the 1962 Congressional elections.

Several measures of the malapportionment of state legislatures are available. Perhaps the most common measure is the theoretical minimum percentage of a state's population that can elect a majority of each house. The two minimum percentages for each chamber can be added to provide an index of malapportionment for the legislature as a whole. Hereafter, this measure is referred to as the "index of representativeness."

Another index was devised by David and Eisenberg to focus on urban under-representation in state legislatures. Because urban areas are most likely to be the subject of discrimination, the authors felt that urban under-representation should be a specific object of measurement, in addition to theoretical measures of representativeness. In order to determine the degree of discrimination against urban areas, David and Eisenberg computed the "value" of a vote cast in the largest urban counties of each state. First they computed the average population of a single member district in each state. Actual constituencies were then compared to these average constituencies: the "value" of a vote was

represented by the ratio of an actual constituency to the average constituency in each state.

A third measure of malapportionment is the technically sophisticated "apportionment score" proposed by Glendon Schubert and Charles Press. The apportionment score combines inverted coefficients of variation for each state (divide the population of the average district by the standard deviation of all districts and subtract the quotient from 1.0) with statistical measures of skewness and kurtosis in the distribution of districts by size of population. The result is an index that measures the combination of variance, skewness, and kurtosis in the populations of legislative districts in each state.

Educational policy outcomes have been operationally defined to include selected measures of educational expenditures, state efforts in education, organizing and financing public schools, the status of teachers, and the numbers of dropouts and selective service mental failures. These outcome measures are described below together with the reasons for their selection.

Measuring the Effects of Economic Variables and Political Variables on Educational Outcomes.

The method chosen to assess the independent effect of political and socio-economic variables on state education outcomes was that of simple, partial, and multiple regression analysis. First, simple correlation coefficients (product moment) were computed for all possible relationships among the four indices of economic development, the 12 measures of political variables, and the measures of educational outcomes. These simple

coefficients show the extent to which differences in economic development and political systems are associated with differences in policy outcomes, but they do not establish whether it is economic development or political party competition which is primarily responsible for differences in these outcomes. For example, if it is shown that, in general, wealthy states have more party competition than poor states, it may be that differences in the educational policies of competitive and non-competitive states are really a product of the fact that the former are wealthy and the latter are poor. If this were the case, policy differences between the states might be attributable to wealth rather than to party competition. In order to isolate the effect of party competition on educational outcomes from the effect of economic development variables, it is necessary to control for these variables. This required that partial correlation coefficients be computed which show the relationship between party competition and the several measures of state policy while controlling for the effect of urbanization, industrialization, income, and education. If relationships between party competition and policy outcomes which appear in simple correlation coefficients disappear when these socio-economic variables are controlled, then we may conclude that there is no independent relationship between party competition and policy outcomes. On the other hand, if partial correlation coefficients between party competition and policy outcomes remain significant, even after the effects of socio-economic variables are controlled, then we may conclude that party competition does have an effect on public policy.

As a check on our findings, partial correlation coefficients were computed for the relationships between economic development variables and policy outcomes while controlling for the effect of party competition. If party competition independently influences policy outcomes, the coefficients between economic development and policy outcomes should be lowered when the effect of party competition is controlled. If controlling for party competition does not lower these coefficients, then we can conclude that competition has no independent effect on policy outcomes.

The same set of operations were employed to test the independent of partisanship, voter participation, and malapportionment.

Finally, multiple and multiple-partial correlations were employed to summarize the total effect of <u>all</u> of the economic development and political system variables on educational outcomes in the states. The multiple correlation coefficient summarizes the total amount of variation in educational outcomes which can be attributed to all of the economic development and political system variables acting together. This statistic enables us to summarize the full explanatory power of our model. Multiple-partial coefficients describes the explanatory power of <u>all</u> of the economic development variables while controlling for <u>all</u> of the political system variables while controlling for all of the economic development measures. This enables us to compare the effects of economic development on policy outcomes with the effects of political variables. It can help us to determine whether the

character of the political system of the native of the socio-economic environment is the most important influence on educational policy.

The Relationship Between Economic Development and the Character of State Politics

Before turning directly to the analysis of educational outcomes, it is important to understand the linkages between economic development and political system characteristics. Our model suggests that educational outcomes may be a product of both economic development levels and political system characteristics, and that the task of policy research is to sort out the effects of system characteristics on educational outcomes from the effects of economic development.

Table 1 presents the simple correlation coefficients for the relationships between economic development and the four sets of system characteristics in the fifty states.

Neither urbanization nor industrialization correlate significantly with Democratic or Republican party success. However, Democratic and Republican states differed significantly with respect to income and education. The negative coefficients indicate that the states with lower income and educational levels tend to be Democratic states, while wealthier states with better educated adult populations tend to be Republican. These relationships between partisanship and income and education are important to keep in mind when exploring the effect of partisanship on policy outcomes. Educational differences between Republican and Democratic states may not really be a product of party affiliation so much as a product of their differing income and education

TABLE 1

THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT AND POLITICAL SYSTEM CHARACTERISTICS IN THE AMERICAN STATES

	Indices of Economic Development			
	Urbanization	Industrialization	Income	Education
Democratic Party Control				
Lower Houses	-.06	.11	-.46*	-.55*
Upper Houses	-.15	.03	-.48*	-.51*
Governors	-.22	-.03	-.56*	-.59*
Party Competition				
Lower Houses	.39*	.21	.71*	.66*
Upper Houses	.45*	.27	.71*	.57*
Governors	.30*	.21	.67*	.62*
Voter Participation				
Governors	.18	.05	.52*	.49*
Congressional	.21	.08	.61*	.59*
Congressional	.26	.10	.66*	.63*
Malapportionment				
Index of Representation	-.24	-.19	.21	-.19
Urban Under-representation	.27	.33*	.36*	-.06
Apportionment Score	.01	.14	.14	.13

NOTE: Figure the simple correlation coefficients (product moment) for fifty states; an asterisk indicates a significant relationship.

levels. To identify the independent effect of party affiliation on policy outcomes, it will be necessary to control for the effects of income and education.

Party competition is even more closely associated with income and education than partisanship. Parties are more evenly balanced in wealthier states with better educated adult populations; there is less competition in the poorer states. There is also a slight relationship between party competition and urbanization. Participation is also noticably higher in states with higher income and education levels.

Table 1 also reveals some slight relationships between economic development and the under-representation of urban areas in state legislatures. Industrial high-income states are less likely to discriminate against their urban areas than low-income agricultural states. However, there was no relationship between economic development and malapportionment in the technical sense; there were no significant correlations between the index of representativeness and the apportionment score and any of the socio-economic measures.

Economic Inputs and Educational Outcomes

A. The Cost of Teaching Johnny to Read

Any analysis of public educational policies must begin by explaining educational expenditures. In the 1961-62, school year expenditures per pupil ranged from Mississippi's $229 to New York $628. The nationwide figure for per pupil expenditures was $418.

Table 2 shows that economic development is an important determinant of a state's willingness and ability to provide educational services.

All four measures of economic development correlate significantly with variations among the states in per pupil expenditures for public education. Partial correlations (not shown) indicate that increases in any one of four measures of economic development -- urbanization, industrialization, income, education -- will bring about increases in per-pupil expenditures, even when the effects of the other three measures are controlled. However, it was the income measure which explained more about per-pupil expenditures than any other variable. Almost 70 percent of the total variation among the fifty states in per-pupil expenditures can be explained with reference to median family income. The results are the same even if the Southern states are excluded from analysis. Clearly wealth is the principle determinant of the amount of money to be spent on the education of each child.

Figure 2 is a scatter diagram which visually portrays the relationships between income and per pupil expenditures. The broken line represents the proposition that per pupil expenditures is a function of median family income. The closer a state hugs this line, the more that state conforms to this proposition. States which lie considerably above or below the lines are states which spend more or less per pupil than one would expect given their income. For example, Hawaii, Utah, Idaho and Ohio spend slightly less than we would expect on the basis of their income levels; while New York, North and South Dakota, Louisiana, Oregon and Wyoming spend slightly more. On the whole, however, states conform quite closely to the proposition that school expenditures are a function of family income.

TABLE 2

THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT
AND SELECTED EDUCATIONAL POLICY OUTCOMES IN THE FIFTY STATES

	Economic Development			
	Urbanization	Industrialization	Income	Education
Per Pupil Expenditures	.51*	.36*	.83*	.59*
Exp. Relative to Income	-.31*	-.44*	-.30*	-.05*
Exp. Relative to Total Exp.	-.10	-.03	.01	.17
Per Capita Expenditures	.20	-.04	.61*	.75*
Size of School District	.06	.26	-.18	-.37*
State Participation	-.10	.18	-.30*	-.35*
Federal Participation	-.36*	-.08	-.32*	-.27
Average Teachers Salary	.69*	.64*	.88*	.57*
Elem. Teachers with B.A.	.42*	.60*	.11	-.04
Sec. Teachers with M.A.	.54*	.42*	.55*	.42*
Male Teachers	.48*	.26	.63*	.63*
Pupil-Teacher Ratio	-.13	-.19	-.43*	-.50*
Drop Out Rate	-.40	+.09	-.54	-.60
Mental Failures	-.05	.13	-.46	-.70

NOTE: Figures are simple correlation coefficients for fifty states; an asterisk indicates a statistically significant relationship.

B. State Efforts in Education

Per pupil expenditures measure both the willingness and ability of a state to spend money for education. The next problem is to separate "willingness to spend" from "ability to spend" in order to roughly determine the sacrifice a state is making for education. The desire for education can be expressed in terms of school expenditures relative to some measure of a state's ability to spend money. In this way states that spend more or less relative to their ability can be identified. The most appropriate measure of ability to pay for education is probably the total personal income of the state. Therefore, the measure "total public school expenditures as a percent of total personal income" really holds constant for ability to spend and more directly measures a state's willingness to sacrifice personal income for public education.

The nation as a whole spent about 3.9 percent of its total personal income for public education in 1960. However, two states, Massachusetts, and Rhode Island, spent less than 3.0 percent of their total personal income for public schools, while two states, Arkansas and Wyoming, spent over 6.0 percent.

Table 2 indicates that increased industrialization, urbanization, and income actually results in a reduction of education effort. This is in striking contrast to the effect of these variables on per pupil expenditures: while per pupil expenditures increase with increasing income levels, school expenditures as a percent of personal income declines. This means that the poorer, less industrialized, rural states are actually putting forth a greater effort in the educational field relative to their

resources than the wealthy, urban, industrial states. But so great are the inequalities among the states in wealth, that the poorer states, despite their greater effort, are unable to approach the wealthier states in per pupil expenditures. Even Mississippi's shockingly inadequate $229 per pupil expenditure (5.8 percent of that state's personal income) represented a greater effort than New York's expenditure of $628 per pupil (only 3.7 percent of that state's personal income spent on education). In short, wealthier states can provide better educations for their children with less of an economic sacrifice than that required of poorer states to provide an inferior education for their children.

Educational expenditures as a percent of total state and local government expenditures is a measure of public effort in education relative to other public efforts. We have already noted that for the nation as a whole, education expenditures constitute the largest functional category of state and local government expenditures. In 1961 educational expenditures amounted to 37 percent of all public expenditures at the state and local level. Yet here again there was considerable variation among the states. Utah spent about 48 percent of its public funds for education, while Massachusetts spent only 29 percent of its state and local government funds for education.

Does economic development affect the proportion of public funds going to education relative to other public functions? In general the coefficients in Table 2 indicate that economic development does not affect the relative proportion of public funds devoted to education. Wealthy, urban, industrial states do not consistently spend more for

education than for other public functions. These states simply spend more for all public functions without particularly favoring education. The variation which exists among the states in the proportion of public funds devoted to education cannot be traced to any of the indices of economic development.

One final expenditure variable deserves attention: per capita educational expenditures. Per pupil expenditures is probably a better measure of educational service per unit of "need" than per capita expenditures. However, it might be argued that not only pupils but every member of society benefits from public education, and therefore it is appropriate to measure education service on a per capita basis. Per capita education expenditures are closely related to income and adult education levels. It is interesting that adult education levels appear even more influential than income in determining per capita school expenditures.

Robert H. Salisbury has suggested that once a certain degree of affluence has been achieved within a state, education expenditures become more closely associated with adult education levels. Wealth permits states to achieve a certain plateau in educational programs, but once affluence permits this realization, efforts to climb still higher depend on commitments to education. He cites the record of educational spending in the Upper Midwest with its tradition of Progressivism and strong commitment to education.

C. Centralization in State Education

A major device for insuring the implementation of state educational policies are state grants of money to local school districts. Since state grants to local school districts are administered through state departments of education, state school officials are given an effective tool for implementing state policies, namely, withholding or threatening to withhold state funds from school districts which do not conform to state standards. The growth of state responsibility for school policy was accomplished largely by the use of money-state grants to local schools. Increasing state participation in school finance, then is an indication of increasing centralization of education in the states.

One of the most dramatic reorganization and centralization movements in American government in this century has been the successful drive to reduce through consolidation of the number of local school districts in the United States. In 1932 in the first official census of governments, there were over 127,000 school districts in the United States. But by 1964 this number had been reduced to 32,000. In a thirty year period three out of every four school districts had been eliminated through consolidation.

The extent of state participation in financing public schools and the success of the school district consolidation movement are both important indices of educational centralization in the states. While it is clear from national trends in both of these indices that the states on the whole are centralizing education, nonetheless these trends are by no means uniform throughout the states. In Nebraska, New Hampshire,

and South Dakota, the state government still provides less than 10 percent of school revenues while in Delaware, New Mexico, and North Carolina the state pays over 70 percent of the cost of the public schools. There is also considerable variation among the states in the success of the school district consolidation movement. The extent of consolidation can be measured by the average size of school districts in pupils. The larger the average districts in a state, the further the movement toward consolidation has progressed.

These two indices of centralization -- the percentage of total school revenues from state sources and the average size of school districts in pupils -- are related. States which pay the largest proportion of the public school bill have been the states which have been most successful in consolidating local school districts. The simple correlation coefficient for the relationship between school consolidation and state participation in school finance among the fifty states in 1962 was .57.

What is the relationship between centralization in the poorer states and the states with lower adult education levels. It is in these states that the state governments have played a greater role in the financing of public schools and the school consolidation movement has made the greatest progress. The negative coefficients indicate that state participation in school finance decreases among the more wealthy states and the states with educated adult populations. These coefficients are not very high, indicating that the relationship between economic development and educational centralization is not particularly close, but they are suggestive. Apparently, the lack of economic resources is a stimulus

toward state participation in school finance and school district consolidation. Affluence, on the other hand, enables smaller local school districts to function more effectively, reduces the need for state aid, and delays the movement toward school consolidation.

D. The Federal Role

Still another question involving the organization of public education in the nation is the role of the federal government. While prior to 1965 large scale federal aid to education plans consistently floundered in the Congress, the federal government did contribute to public education through a number of specialized programs.

The total financial contribution of the federal government to public elementary and secondary education through these programs was quite small. Federal funds amounted to only about 4 percent of the total public school revenues in 1962. However, there is considerable variation among the states in the extent of their reliance on federal funds for public schools. Federal participation in school finance does have a slight equalizing affect among the states. Table 2 shows that the federal government tends to pay a greater proportion of the cost of public education in the less wealthy, rural states. Thus, federal aid tends to equalize educational opportunity throughout the fifty states. However, the small amounts involved, and the low coefficients, severely limit the equalizing effect of this aid.

With the passage of the Elementary and Secondary Education Act of 1965, the role of the federal government in education finance will be greatly expanded. This Act, among other things, pledges important

federal aid to poverty impacted schools, those schools which enroll children from low income families. It can be expected that the equalizing effect of federal aid will be more pronounced in the years ahead as the federal percentage of educational expenditures increases.

What is the effect of increased state and federal participation on public school systems? Since it is in the poorer states that state government plays the greatest fiscal role, and these states also have the lowest per pupil expenditures, simple coefficients seem to say that state participation brings about lower per pupil expenditures. The simple coefficient for the relationship between state participation in school finance and per pupil expenditures among all fifty states is -.26. However, once the effects of economic development are controlled, this coefficient disappears; the partial coefficient for the relationship between state participation and per pupil expenditures while controlling for the effect of economic development is -.03. Clearly then, it is a lack of economic resources, and not state participation, which brings about lower per pupil expenditures in the less wealthy states. There is no visible relationship between federal participation in school finance and per pupil expenditures; the simple coefficient for this relationship is -.07 and the partial coefficient, controlling for economic development, is -.06.

It is noteworthy, however, that the partial coefficients do <u>not</u> permit us to conclude that state and federal participation leads to increases in per pupil expenditures. The partial coefficients are too low to assert any positive relationship between state or federal

participation and per pupil expenditures. State aid is more of a substitute for local support than it is a stimulant to educational expenditures. The same is apparently true regarding federal aid in its present form.

E. States and School Teachers

Traditionally the public thought that teachers needed to know only a little more than the children they taught. Only recently have states begun to limit recruitment to persons with a bachelors degree. Large numbers of persons without college degrees remain on teaching staffs in the public schools, and in addition, many states grant "provisional", "temporary", or "emergency" certificates to persons with little preparation for teaching. Approximately three quarters of the nation's elementary school teachers are reported to hold Bachelor's Degrees, while about one-third of the nation's secondary school teachers hold Master's Degrees. Let us assume that the proportion of elementary teachers with a B.A. or B.S. degree and the proportion of secondary school teachers with a M.A. or M.S. degrees are rough measures of the adequacy of teacher preparation in a state school system.

It is interesting to observe that the states which apparently placed little emphasis on elementary teacher preparation were not necessarily the poorer states, but they were the more rural and agricultural states. The coefficients in Table 2 for elementary teacher preparation show that state income levels were not related to 4 year college preparation, but urbanization and industrialization were related to this measure. The reliance of many midwestern agricultural states upon the two year normal

school for teacher preparation may have retarded the development of four year toacher colleges which even the poorer states of the South have been able to provide. Apparently midwestern farm communities did not feel that their elementary teachers needed to be college graduates.

The rural states also score low in the preparation of their secondary teachers. However, in the case of secondary teachers, income levels play an important role in the willingness and ability of a state school system to obtain highly trained high school teachers. All four measures of economic development were related to the preparation of secondary teachers.

The average teachers salary in the nation in 1962 was $5,710 per year. This was higher than the average salary of industrial workers ($5,087 for 52 weeks) but considerably lower than the average salary of professional groups. School teachers in Connecticut, California, and New York were the best paid teachers in the nation in 1962 with average annual salaries in the neighborhood of $7,000 per year. School teachers in Arkansas, South Carolina and Mississippi were the lowest paid in the nation with average annual salaries in that year below $3,900. The range of differences among the states in teachers salaries were striking: California paid its teacher twice the annual salary paid to teachers in Mississippi.

Economic development is an important determinant in teachers salaries. Table 2 shows that all four measures of economic development were closely related to teachers salaries in the fifty states in 1962. It was wealth, however, which was the single most important determinant of teacher's

salaries. Median family income explained almost 80 percent of the variation among the states in average teachers salaries.

Another important measure of the professionalization of teaching is the percent of total classroom teachers who are men. In 1962 the proportion of men among classroom teachers in the nation was 30 percent. The steady rise in the male proportion of teachers since 1910, when only 10.5 percent were men, attests to be growing professionalization of public education.

Table 2 indicates that economic development is positively related to the proportion of male teachers, although the relationship is less direct than the relationship between economic development and salary levels. Wealthy, urban states with well-educated adult populations attract more men into their public educational systems than states lacking in these attributes.

One final measure in instructional quality available for all fifty states is the pupil-teacher ratio, or the number of pupils enrolled per member of instructional staff. Two indices of economic development, family income and adult educational level, correlated significantly with teacher-pupil ratios in the fifty states. Urbanization and industrialization appeared to have little independent effect on teacher-pupil ratios. The signs of the coefficients in Table 2 indicate that teacher-pupil rations declined with increases in income and educational levels.

F. Drop-outs and Mental Failures

Given conflicts over the objectives of public education, it is difficult to make any overall evaluation of educational output. Is the

goal of public education college preparation, vocational skill, emotional happiness, psychological adjustment, academic excellence, the reduction of automobile accidents, the inculcation of spiritual values, the cultivation of patriotism, the production of engineers and scientists, the training of competent homemakers, or winning the Olympics? How can we tell whether the failure to achieve any one of these objectives is a product of our educational policies or an outgrowth of other national problems?

Two measures seemingly reflective of public education which are available on a state by state basis are the proportion of high school students who drop out of school before graduation and the proportion of selective service registrants who fail the mental examination prior to induction. Certainly the child who does not complete at least 12 years of education in a highly technological society represents a national liability, and so does the young man so feebly equipped with mental faculties that he is of no use to the armed services of the nation.

Economic development, particularly wealth and adult education levels, is directly related to drop-out rates and mental failures. Thus, the simple correlations point to a familiar syndrome: wealthy states with well educated adult populations are the same states which spend more per pupil on their public schools; pay higher teacher's salaries, attract more male teachers, and have better teacher-pupil ratios; and these same states tend to experience fewer high school drop-out and selective service mental failures. In contrast, the less wealthy states with poorly educated adult populations spend less per

pupil on their public schools, pay lower teachers' salaries, attract fewer male teachers, and have poor teacher-pupil ratios: and these same states experience more drop-outs and mental failures.

System Variables and Educational Outcomes

A. Partisanship

Thus far attention has been focused upon the relationships between socio-economic inputs and education policy outcomes. Now we turn to the problem of assessing the influence of political system characteristics on educational policy.

Of course, in assessing the influence of political system variables on educational policy, it is necessary to take into account the effect of socio-economic inputs, since these inputs have already been shown to influence both system characteristics and educational outcomes in the states. As explained earlier, partial correlation analysis will enable us to explore the complex relationships between political system variables, socio-economic inputs, and educational policy.

First of all, let us examine the effect of Democratic and Republican party control of state government in education policy. Are the educational policies of states under Democratic and Republican control any different?

Table 3 presents both simple and partial correlation coefficients for the relationships between educational policy outcomes and Democratic dominance in state legislatures and gubernatorial elections. The partial coefficients control for all four measures of economic development - urbanization, industrialization, income, and education.

TABLE 3

THE RELATIONSHIPS BETWEEN POLITICAL SYSTEM CHARACTERISTICS AND STATE EDUCATIONAL OUTCOMES

	Partisanship					
	Lower Houses		Upper Houses		Governorships	
	Simple	Partial	Simple	Partial	Simple	Partial
Per Pupil Expenditures	-.47*	-.06	-.43*	.06	-.58*	-.18
Exp. Relative to Income	.15	.33	.20	.31	.07	.10
Exp. Relative to Total Exp.	.05	.17	.11	.22	-.10	-.07
Per Capita Expenditures	-.39*	.30	.34*	.29	.51*	.05
Size of School District	.64*	.49*	.52*	.36*	.44*	.22
State Participation	.68*	.61*	.63*	.53*	.55*	.41*
Federal Participation	.27	.60*	.29	.51*	.18	.38*
Average Teachers Salary	-.23	.27	.20	.05	.42*	.02
Elem. Teachers with B.A.	.62*	.67*	.60*	.71*	.41*	.45*
Sec. Teachers with M.A.	-.15	.06	-.12	.16	-.24	.04
Male Teachers	-.49*	-.25	-.48*	-.21	-.58*	-.29
Pupil Teacher Ratio	.72*	.50*	.67*	.44*	.72*	.51*
Drop Out Rate	-.69*	-.55*	-.66*	-.46*	-.64*	-.34*
Mental Failures	.71*	.42*	.64*	.39*	.74*	.56*

	Party Competition					
	Lower Houses		Upper Houses		Governors	
	Simple	Partial	Simple	Partial	Simple	Partial
Per Pupil Expenditures	.51*	.08	.48*	.00	.59*	.03
Exp. Relative to Income	.07	-.14	-.16	-.21	-.24	-.27
Exp. Relative to Total Exp.	-.15	-.15	-.03	-.02	-.11	-.09
Per Capita Expenditures	.43	.07	.37	.10	.46	.14
Size of School District	-.51	-.34	-.37	.18	-.43	-.29
State Participation	-.50	-.31	-.42	-.21	-.47	-.34
Federal Participation	-.24	-.30	-.26	-.34	-.14	-.34
Average Teachers Salary	.36	.11	.35	.18	.49	.12
Elem. Teachers with B.A.	-.38	-.34	-.39	-.34	-.32	-.34
Sec. Teachers with M.A.=	.16	.16	.13	.22	.35	.05
Male Teachers	.50	.14	.41	.03	.57	.22
Pupil Teacher Ratio	-.55	-.21	-.50	-.15	-.64	-.34
Drop Out Rate	-.74	-.53	-.67	-.40	-.62	-.38
Mental Failures	-.64	-.37	-.57	-.36	-.73	-.63

TABLE 3 (CON'T)

THE RELATIONSHIPS BETWEEN POLITICAL SYSTEM CHARACTERISTICS AND STATE EDUCATIONAL OUTCOMES

	Voter Participation					
	Governors		Congressional		Congressional	
	Simple	Partial	Simple	Partial	Simple	Partial
Per Pupil Expenditures	.49*	.18	.58*	.08	.58*	.05
Exp. Relative to Income	-.19	-.23	-.17	-.22	-.19	-.25
Exp. Relative to Total Exp.	.13	.12	.08	.04	.08	.04
Per Capita Expenditures	.38*	-.08	.47*	-.10	.52*	-.09
Size of School District	-.45*	-.29	-.53*	-.41*	-.46*	-.28
State Participation	-.46*	-.31	-.56*	-.46*	-.48*	-.33
Federal Participation	-.26	-.29	-.24	-.28	-.14	-.34
Average Teachers Salary	.35*	-.16	.42*	-.17	.44*	-.26
Elem. Teachers with B.A.	-.37	-.37-	.43	-.50	-.38	-.44
Sec. Teachers with M.A.	.31	.11	.25	-.05	.34	.06
Male Teachers	.49	.22	.63	.32	.61	.30
Pupil Teacher Ratio	-.63	-.30	-.70	-.39	-.63	-.32
Drop Out Rate	-.66	-.53	-.68	-.49	-.71	-.49
Mental Failures	-.73	-.63	-.78	-.63	-.77	-.60

	Malapportionment					
	Index of Representativeness		Urban Under-Representation		Apportionment Score	
	Simple	Partial	Simple	Partial	Simple	Partial
Per Pupil Expenditures	.12	.07	.36*	.12	.09	.15
Exp. Relative to Income	.10	-.06	-.27	-.07	-.10	-.06
Exp. Relative to Total Exp.	.02	-.02	.16	-.11	.04	-.09
Per Capita Expenditures	-.19	-.01	-.03	.01	-.06	-.25
Size of School District	-.24	-.31	.19	.20	-.13	-.15
State Participation	-.25	-.34	-.32*	-.43*	-.23	-.28
Federal Participation	-.06	-.13	-.33*	-.39*	-.07	-.18
Average Teachers Salary	-.29	-.20	.30*	-.17	-.01	-.28
Elem. Teachers with B.A.	-.24	-.19	-.13	-.29	-.12	-.24
Sec. Teachers with M.A.	-.07	.19	.14	-.07	.10	-.04
Male Teachers	-.22	-.09	.15	-.01	-.01	-.10
Pupil Teacher Ratio	-.11	-.23	-.31*	-.41*	-.15	-.21
Drop Out Rate	.06	.29	.37*	.54*	.15	-.29
Mental Failures	-.09	-.27	-.15	-.27	-.16	-.14

As the coefficients indicate, there are many significant associations between partisanship and public policy outcomes. The simple coefficients show that states experiencing Democratic party control between 1954 and 1964 were the same states which had lower per pupil expenditures and lower per capita educational expenditures. While these Democratic states had more elementary teachers with B.A. degrees, on several other measures of quality instruction they ranked low. They had fewer male teachers, higher pupil-teacher ratios, and higher dropout rates and mental failures. There was also some slight association between Democratic control and lower teachers' salaries. Finally, Democratic states tended to have larger school districts and to receive greater shares of educational revenues from state rather than local sources. Republican party control of state government, on the other hand, was associated with just the opposite of all of these educational outcomes.

When economic development is controlled, however, some of the association between partisanship and public policy disappears. This means that part of the association between Democratic party control and educational outcomes was merely a product of the intervening effect of economic development. There seems to be no independent relationship between partisanship and per pupil expenditures, educational expenditures relative to income, per capita educational expenditures, average teachers' salaries, the preparation of secondary teachers, or the proportion of male teachers. These important educational outcomes are not affected by which party dominates state government.

On the other hand, even after controlling for economic development, significant associations continued to exist between partisanship and elementary teacher preparation, pupil-teacher ratios, drop-out rates, mental failures, the size of school districts, and the extent of state and federal participation in school finance. The coefficients for these relationships were noticeably reduced when economic development was controlled, but we cannot reject the idea that there is some linkage between partisanship and these outcomes, a linkage which is not an artifact of economic development.

In spite of these controlled relationships, we are reluctant to infer that a direct causal relationship exists between Democratic politics and higher drop-out rates and mental failures. It seems unlikely that Democratic politics "brings about" drop-outs or mental failures, or even vice versa, especially in view of the fact that Democratic politics does not effect per pupil expenditures or teachers' salaries. The concentration of Southern states among the most Democratic states accounts for these relationships; if the Southern States are removed, the coefficients disappear. Rural Midwestern Republican states, although they share many of the same economic characteristics of Southern states, have fewer drop-outs and mental failures. Likewise the Midwestern reliance on two year normal school preparation in lieu of a B.A. for elementary teachers is probably not a product of Republican party affiliation.

The Southern states stand high on drop-out rates, and mental failures. This standing is not merely a product of their lower

economic development levels, since Southern states stand higher than non-Southern states in these outcomes even after controlling for economic development. This suggests that some attribute of the Southern States other than their economic development levels or Democratic politics accounts for these generally undesirable educational outcomes. Of course, our model cannot help us to explain policy outcomes which are not a product of the input variables or system characteristics included in our model. We can only speculate on what attribute of the Southern states is responsible for these educational failures. Certainly a plausible explanation is the system of segregated education in the Southern states with its deprivation of educational and cultural opportunities for large numbers of children. Negroes are heavily overrepresented in drop-out rates and mental failures. It is probably not only segregated education which brings this about, but limitations on occupational and employment opportunities and general cultural deprivation.

It seems more plausible that Democratic politics might "bring about" increased federal and state support for education and decreased reliance upon local sources of educational revenue. Controlling for economic development actually increased the correlation between Democratic control and federal financial participation. Moreover, the removal of the Southern states did not significantly affect the partial coefficients between Democratic politics and these particular outcomes. Differences between strong Democratic and strong Republican states in the degree of centralization in state educational administration must

be related in some way to their differences in party affiliation. The Midwestern and upper New England states, which in many ways resemble the South in economic resources, have resisted the consolidation of local school districts and have continued to place the heaviest financial burden of education on local rather than state governments. This suggests that in their policy adjustments to economic deprivation, strong Republican and strong Democratic states take separate courses. Strong Republican states in the Midwest and upper New England refuse to give up local control over education, while strong Democratic states of the South have consolidated school districts and looked to the state and federal governments for financial support.

All we can really say on the basis of these operations, however, is that a linkage exists between the partisan character of state politics and several educational outcomes, and that this linkage does not depend upon economic development.

B. Party Competition

In the simple coefficients in Table 3 which do not control for the effects of economic development, party competition appears significantly related to many of the educational variables. States with a high degree of party competition tend to spend more money per pupil on their schools, pay higher teachers salaries, attract more men teachers, and experience fewer drop-outs and mental failures. These same states have larger school districts and raise more school revenue from local than from state or federal sources. But since we already know that economic development affects both party competition and educational policies, it

is necessary to sort out the influence of party competition on educational policy from the influence of economic development. When the effects of economic development are discounted, party competition does not explain differences among the states in per pupil expenditures, educational effort, teachers' salaries, teacher preparation, male teachers, or pupil-teacher ratios. Party competition appeared independently related only to drop-out rates and mental failures, but this relationship is a product of the peculiar influence of Southern States.

In short, while competitive states and non-competitive differ somewhat in education policy (as shown by simple correlation coefficients), these differences can be traced to the effect of economic development rather than party competition (as shown by the disappearance of significant coefficients.) It is a state's economic development rather than its party system which is the principle determinant of educational policy.

C. Political Participation

The simple coefficients in Table 3 show that there is considerable association between voter turnout and educational outcomes. States with high levels of voter participation are the same states with generally higher per pupil and per capita educational expenditures, higher teachers' salaries, better prepared secondary teachers, more male teachers, smaller pupil-teacher ratios, and fewer drop-outs and mental failures. They are also the same states with smaller school districts and greater reliance on local school revenue rather than state or federal school aid. However,

since we know that these states are also the most wealthy, urban, industrial states with better-educated adult populations, we cannot attribute these educational outcomes to participation levels until we control for the effects of economic development.

When economic development is controlled, most of the association between voter participation and educational outcomes disappears. Voter participation has no independent effect upon education expenditures, average teachers' salaries, male teachers, pupil-teacher ratios; teacher preparation, the size of school districts, or the extent of state or federal participation and these educational outcomes exist because of the relationships of these two sets of variables to the same third intervening variable - economic development.

Interestingly, the coefficients between participation and drop-out rates and mental failures remain significant even after controlling for economic development. This relationship does not depend upon the Southern states. It may be that the relationship between participation and drop-out rates and mental failures is a feedback linkage. Participation may not effect educational outcomes, but education outcomes, particularly drop outs and mental failures, may affect participation. Coefficients do not tell us which way the causal arrows point, but we cannot reject the possibility of some causal linkage between drop-out rates and mental failures and voter participation.

D. Malapportionment

Malapportionment of state legislatures has been successfully challenged before the Supreme Court on the grounds that it denies to citizens

the equal protection of the laws. This was a normative challenge stemming from deeply held values about political equality. Our empirical model cannot help us examine the merits of this challenge. The moral case for reapportionment cannot be tested empirically. However, proponents of reapportionment have occasionally made statements about the effect of malapportionment on public policy and predictions about the policy consequences of reapportionment. These statements <u>can</u> be tested empirically. In the field of education, it might be hypothesized that malapportionment, with its over-representation of rural areas, leads to a de-emphasis on education.

However, on the whole, the policy choices of malapportioned legislatures are <u>not</u> noticeably different from the policy choices of well-apportioned legislatures. None of the coefficients under the index of representativeness or the apportionment score are statistically significant. There is no evidence that malapportionment in its technical sense has any relevance in educational policy decisions. Only six of the simple coefficients under the index of urban under-representation are above the level of significance, and only four of these held up well once socio-economic variables are controlled. School expenditures decline with increases in malapportionment yet this relationship is clearly a product of the fact that expenditures are lower in the rural less wealthy, agricultural states. Once economic development is controlled, the relationship between malapportionment and educational expenditures disappears. The same is true regarding average teachers' salaries. Urban under-representation is slightly related to higher

pupil-teacher ratios, higher drop-out rates, and increased state and federal participation in school finance. These relationships do not disappear when the Southern states are removed from the correlation analysis.

An Evaluation of a Model: Multiple Regression Analysis

Let us begin an evaluation of our explanatory model by trying to summarize its powers of explanation. To what extent can differences in educational outcomes among the states be explained by reference to our model? Operationally speaking, the question becomes: How much of the total variation in educational outcomes can be attributed to all of the economic development variables and political system characteristics considered together.

Multiple correlation analysis can show the extent to which variations among the states in each policy measure can be explained by all of the economic and political factors included in our model. Multiple correlation coefficients can range from .00, indicating that the factors in our model have failed to explain any variation in policy outcomes among the states, to 1.00, indicating that the factors in our model considered together have succeeded in explaining all of the policy differences among the states.

Multiple correlation coefficients for key policy variables are shown in the left-hand column of Table 4. These coefficients summarize the total effect of four economic development measures and four political system variables on each policy outcome. In other words, these coefficients summarize the explanatory power of urbanization, industrialization, income, education, partisanship, party competition, voter participation, and malapportionment, considered together.

The summary coefficients presented in Table 4 show that our model possesses very substantial explanatory power. Of course, the question

TABLE 4

A COMPARISON OF THE EFFECT OF ECONOMIC DEVELOPMENT VARIABLES AND POLITICAL SYSTEM VARIABLES ON EDUCATIONAL OUTCOMES IN THE AMERICAN STATES

	Total Effect Economic Development and Political System Variables	Total Effect Economic Development Variables	Total Effect Political System Variables	Effect of Economic Development Variables Controlling for Political System Variables	Effect of Political System Variables Controlling for Economic Development Variables
Per Pupil Expenditures	.86	.85	.58	.61	.04
Size of School Districts	.69	.52	.67	.05	.28
State Participation	.74	.49	.70	.13	.41
Federal Participation	.74	.50	.37	.48	.40
Average Teachers Salary	.91	.90	.43	.78	.05
Elem. Teachers with B.A.	.85	.70	.64	.54	.47
Sec. Teachers with M.A.	.64	.60	.33	.34	.08
Male Teachers	.73	.70	.56	.32	.10
Pupil Teacher Ratio	.80	.70	.74	.24	.30
Drop Out Rate	.91	.82	.79	.54	.48
Mental Failures	.88	.79	.81	.32	.39

of what is or is not a satisfactory level of explanation is always a very subjective one. But it seems safe to conclude that our model has turned out to be a very powerful tool in policy analysis. A multiple coefficient of .71 or above indicates that more than half of the total variation among the states in a policy measure has been explained by our model. Most of our key policy measures are above that level of explanation, and others are quite near to it. This means that our model succeeds in explaining most of the variation among the fifty states in important policy outcomes in education.

While multiple coefficients can summarize the over-all explanatory power of our model, they do not deal with the specific linkages in our model between educational policy, economic development, and state politics.

A Comparison of the Effects of Economic and Political Variables on Educational Policy

In terms of our original model for analyzing policy outcomes in the American states, we were unable to produce much evidence to support the notion of strong explanatory linkages between political system characteristics and educational outcomes.

However, one further set of operations seems appropriate in order to confirm our belief that the character of political systems is less important than economic development in shaping educational policy. Thus far, we have considered the effect of each political variable separately. We have not yet observed the combined effects of all of

our political variables on educational outcomes. Yet we know that these political variables are somewhat interrelated. The question remains whether or not all of the political system characteristics considered together might not turn out to be very influential in shaping public policy.

We want to know how much variation in educational policy can be explained by all of the political system characteristics at once while controlling for all of the socio-economic variables at once. Then we want to compare this with the variation in educational policy which can be explained by all of the socio-economic variables at once while controlling for all of the political factors at once. The only way to do this is with multiple-partial correlation coefficients. These statistics permit us to compare the influence of all of our economic development variables with the influence of all political system characteristics.

In Table 4 the multiple-partial coefficients in the fourth column from the left show us the explanatory power of all of the economic development variables while controlling for all of the political system variables. The multiple partial coefficients in the fifth column show the explanatory power of all of the political system variables. By comparing the size of the coefficients in these two columns we can compare the effects of all economic development variables, while controlling for all political system variables, with the effects of all political variables, while controlling for all economic development variables.

Again the evidence seems conclusive: economic development variables are more influencial than political system characteristics in shaping educational policy in the states. Multiple and multiple-partial correlation analysis presented in Table 4 confirms the results of simple and partial correlation analysis presented early. A majority of the policy variables listed are more closely related to economic variables than to political variables. These are the policy outcomes for which the coefficients in the fourth column are larger than the coefficients in the fifth column. For these outcomes the effects of all economic variables under controlled conditions are greater than the effects of all political variables under controlled conditions.

There are only four policy outcomes which appear to be more influenced by political variables than by economic variables. These are pupil-teacher ratios, drop-out rates, the size of school districts, and reliance upon state government for school revenue. Two of these variables - the size of school districts and state financial participation - have to do with centralization in education. Political conditions in the states may not "cause" or "bring about" these outcomes. But there is an association between political conditions in the states and these outcomes which is not merely a product of the intervening impact of economic development.